

REMARKS

Claims 17, 21-29 are now pending, with Claim 17 being the sole independent claim. Claims 18-20 have been canceled. Claim 17 has been amended to recite "95% sequence identity when compared to SEQ ID NO:36." Support for this can be found in the specification, for example, on page 11 at lines 23-24. Therefore, no new matter has been added.

Claims 17-29 were rejected under 35 U.S.C. §112, first paragraph because the "claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention."

The claimed invention concerns an isolated polynucleotide encoding a polypeptide having "Myb-related transcription factor activity" and an "amino acid sequence of at least 95% sequence identity when compared to SEQ ID NO:36." The specification on page 1, lines 23-29, provides that Myb-related transcription factors share a repeat DNA binding motif, which contains conserved tryptophan residues and a helix-turn-helix domain. This section of the specification also mentions that Myb-related proteins from plants are known to contain two of these DNA binding repeats, R2 and R3.

Plant Myb-related proteins have been reviewed by Jin & Martin (1999, *Plant Mol Biol* 41:577-585), a copy of which is provided herewith. In plants, R2R3 Myb-related proteins are involved in regulation of the following: phenylpropanoid metabolism, development, signal transduction, plant disease resistance and cell division.

Enclosed is a copy of Uimari, A., *et. al.*, *The Plant Journal*, 12(6) 1273-1284 (1997). This reference discusses the pea myb26 protein that is believed to be involved in regulation of phenylpropanoid biosynthesis in pea. The Uimari reference discusses plant Myb-related transcription factors and their characteristics, particularly conserved domains in the N-terminus. The Uimari reference reviews on page 1274, first column, that most plant Myb-related proteins have two DNA-binding Myb domain repeats, R2 and R3, near the N-terminus, which include "three conserved tryptophan residues per repeat, spaced by 18 or 19 amino acids. Each repeat has the potential to form three alpha-helical segments resembling a helix-turn-helix structure." The amino acid sequence of the Myb-related transcription factor myb26 is illustrated in Figure 2 of the Uimari reference. The two DNA-binding repeats are underlined and the conserved tryptophans are in bold. The Uimari reference mentions on page 1275, first column, that the first tryptophan in the second repeat is

replaced by isoleucine and that isoleucine and phenylalanine, at this position, are the most common amino acids in plant Myb proteins in addition to tryptophan.

The polypeptide set forth in SEQ ID NO:36 share the same structural features of Myb-related transcription factors set out in the Uimari reference. Applicants respectfully submit an alignment between the polypeptide sequence set forth in SEQ ID NO:36, myb26 (discussed in the Uimari reference; NCBI GI No. 1841475) and myb305 from *Antirrhinum majus* (Moyano et al. (1996) *Plant Cell* 8:1519-1532; NCBI GI No. 75107026) that clearly illustrate this point. See Appendix A¹, attached. SEQ ID NO:36 displays two Myb domain repeats, the first repeat, R2, from residue 15-67 (of the consensus #1 sequence) and second repeat, R3, from residue 68-120. Each conserved tryptophan residues is marked with an asterisk at positions 20, 40, 60, 73 (tryptophan replaced by isoleucine here), 92, and 111, relative to the consensus #1 sequence. These six amino acid residues are identical to that of myb26 and myb305. Additionally, residues in myb26 and myb305 that are identical to the corresponding residues of SEQ ID NO:36 are shaded.

It is respectfully submitted that the polypeptide set forth in SEQ ID NO:36 does indeed possess Myb-related transcription factor activity, which can readily be determined using known tests. Submitted herewith is the declaration from Dr. Joan Odell (Odell Declaration) that demonstrates that the claimed polypeptide possesses Myb-related transcription factor activity. Also, the Odell Declaration discusses transcriptional activation by a chimera that includes the DNA binding N-terminal region of SEQ ID NO:36. It is known that some myb genes in plants, e.g., *Antirrhinum myb305* (Moyano et al. (1996) *Plant Cell* 8:1519-1532), are involved in the regulation of the anthocyanin pathway, which leads to purple pigmentation. The results shown in the Odell Declaration show that the anthocyanin pathway was activated by transformation of *Arabidopsis* with either the polynucleotide encoding SEQ ID NO:36 or the chimera comprising the N-terminal DNA-binding region of SEQ ID NO:36.

It is respectfully submitted that in view of the Odell declaration and alignment set forth in Appendix A, showing that SEQ ID NO:36 possesses conserved motifs associated with Myb-related transcription factors, the specification does enable one skilled in the art to practice the claimed subject matter. Accordingly, withdrawal of this ground of rejection is respectfully requested.

Claims 17-29 were rejected under 35 U.S.C. §112, first paragraph because the claims were cited as "containing subject matter which was not described in the

¹ The amino acid alignment of APPENDIX A was created using the Megalign program and the Clustal method of alignment with default parameters, as cited in the specification in Example 3, on page 28, lines 10-22.

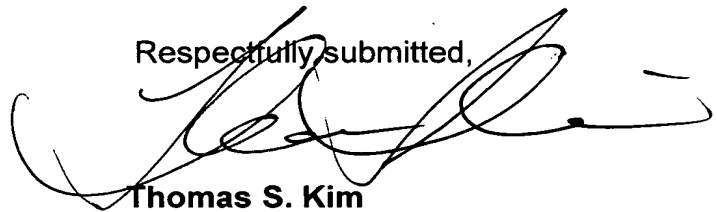
specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention."

It is respectfully submitted that the above-discussion with respect to enablement is equally apposite to this ground of rejection. In particular, in view of the Odell declaration and alignment set forth in Appendix A that show SEQ ID NO:36 to possess conserved motifs characterizing Myb-related transcription factors support, the claimed invention is fully described in the specification. As such, withdrawal of the rejection of the claims under 35 U.S.C. § 112, first paragraph, as failing to meet the written description requirement is respectfully requested.

In light of the foregoing, it is respectfully submitted that the claims are in condition for allowance and such allowance is respectfully requested. Submitted herewith are the following: A Petition for a two-month extension of time, copy of Uimari reference, Appendix A, and a Declaration of Dr. Joan Odell.

Please charge any fees or credit any overpayment of fees, which are required in connection herewith to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

Respectfully submitted,



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